



The Minuteman Repeater Association

# The Minuteman

Volume 41, Number 4

March 2012



**Membership Meeting ~ Wednesday, 21 March 2012 @ 7:00 PM**

## **Ham's in Emergency Communications**

**Concord Public Safety Building, EOC training room, 209-219 Walden St.**

**North off Rt. 2 away from Walden Pond and past the courthouse. Walden St. is also Rt. 126.**

### **Mike Neilsen, W1MPN**

Mike will discuss how ham radio operators are still considered important players in the overall emergency communication (EMCOMM) response. He will outline how ham radio is used in today's complex public safety environment in the face of complicated issues of reduced state budgets and agency consolidations. Mike will discuss the onset of sophisticated EMCOMM systems in the state and region and chart the systems for you. He will also briefly describe the requirements of NIMS, ICS, and state programs, as they apply to ham operators. W1MPN will explain many of the new approaches to the integration of ham EMCOMM volunteers into initiatives such as COML, RADO, ACS, and COOP/COG, and how they relate to RACES, ARES, SKYWARN, MARS, and the CERT programs.

He will then give a brief update of the changes being proposed for the existing RACES program by MEMA, as part of the current outreach to hams.

Mike also serves on our Board of Directors as a director. He has previously served two terms as ARRL Eastern Massachusetts Section Manager, and as ARRL Eastern Massachusetts Section Emergency Coordinator before that. W1MPN is a civilian advisor to the National Weather Service Office in Taunton, MA, and the SKYWARN program. Mike presently owns Neilsen Group, an investment risk management firm.



**New 220 Network! See page 5.**

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## About the Minuteman Repeater Association

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets (usually) on the 3rd Wednesday of September, November, January, March, and May. Meeting time, locations and talk-in frequency vary. These are announced in the newsletter and on weekly nets. Meetings are open to all interested parties.

The Minuteman newsletter is Emailed one week before each meeting. Members are encouraged to submit articles. Articles may be sent to the editor via email to [newsletter@mmra.org](mailto:newsletter@mmra.org). The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Join us!

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Email to the club leadership should be sent to [contact@mmra.org](mailto:contact@mmra.org). The MMRA maintains a web site at: <http://www.mmra.org/>

An email distribution list for club members named "MMRA" is at: [www.yahogroups.com/](http://www.yahogroups.com/)

**No part of this newsletter can be copied or posted elsewhere without prior approval from the club. Your cooperation in this matter is appreciated.**

### MMRA QRM Policy

MMRA members and all other operators are strongly encouraged to report repeater activity that does not abide by Part 97 rules or accepted amateur radio practice to the board of directors at [contact@mmra.org](mailto:contact@mmra.org) or via other means.

The most effective way (and probably the only effective way) to deal with an individual causing QRM is to NOT engage that individual on the air. Please include the time and date of any incident. Measures are being taken to make audio recordings of repeater activity.

### Repeater and Frequency Information

Up-to-date information about both MMRA repeaters and affiliate repeaters can be found at

<http://www.mmra.org/repeaters/index.html>

Band	Location	Freq	PL	Call	Linking	
					To Hub 1	To Hub 2
MMRA Voice Repeaters						
10m	Marlboro	29.680	131.8	W1MRA	PTL	PTL
6m	Marlboro	53.810	71.9	W1BRI	PTL	PTL
2m	Belmont	145.430	67.0	WA1RTT	—	—
	Boston	146.160	—	W1MRA	D-Star	
	Mendon	146.610	146.2	AE1C	FTL	PTL
	Quincy	146.670		W1BRI	PTL	PTL
	Burlington	146.715		KC1US	PTL	PTL
	Weston	146.790		N1BE	PTL	PTL
	Brookline	146.820		K5TEC	FTL	PTL
	Marlboro	147.270		W1MRA	PTL	PTL
	1¼m	Hopkinton		223.940	103.5	K1KWP
Quincy		224.400	N1KUG	PTL		FTL
Weston		224.700	N1NOM	PTL		FTL
Marlboro		224.880	W1MRA	PTL		FTL
70cm	Lowell	442.250	88.5	K1LVF	FTL	PTL: 446.775
	Weston	442.700		W1MRA	Network Hub 2 (PTL to Hub 1)	
	Burlington	446.775		W1DYJ	FTL	PTL
	Southboro	449.575		W1BRI	PTL	PTL
	Marlboro *	449.925		W1MRA	Network Hub 1	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	—
	Marlboro *	927.700		W1MRA	PTL	—
MMRA Other Systems						
Marlboro		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	
* Internet	449.925: Echolink ; IRLP node 4133					
	927.0625: IRLP node 4977			Normally linked to the NEAR-900 Reflector, 9125. Linked to MMRA via IRLP for the TIAOS net. Normally linked together.		
	927.700: IRLP node 4978					

**Notes:** FTL = Full Time Linked (or default state)  
PTL = Part Time Linked (on schedule or demand)  
Note — a repeater can be linked to only one Hub at a time.

**PL:** PL is required to prevent interference. .

## President's Corner

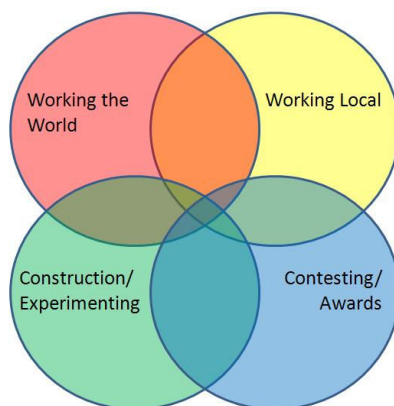
**Bob DeMattia — K1IW**

Recently, my daughter participated in a visual presentation competition through her 4-H club. In the competition, the kids come up with a topic they wish to discuss, then prepare a three to ten minute speech, with visual aids. They do their presentation in front of judges and are graded on many aspects of its quality. To give you an idea of the diversity of the topics, they range from "Why people get brain freeze" to "The history of the Boston Bruins", to "What is the composition of a black hole".

My daughter chose the topic "What is Ham Radio". So next came the challenge of explaining to people who might know absolutely nothing about the hobby in about seven minutes.

What she came up with was a whole new amateur radio spectrum. She basically broke the hobby up into four major interest areas:

This was an interesting way to view the hobby. After I saw it, I began trying to think of some aspect of the hobby that didn't fit these four areas, but couldn't. Comparing this model against the sec-



tions in a recent copy of QST didn't disprove anything either.

Where do you fit in this universe? If you are an MMRA member, you most likely participate in "Working Local". But is this your only interest, or the major one? As a club that operates VHF and UHF repeaters, MMRA is more or less confined to this quadrant. There are other clubs, such as YCCC, that fall into other areas.

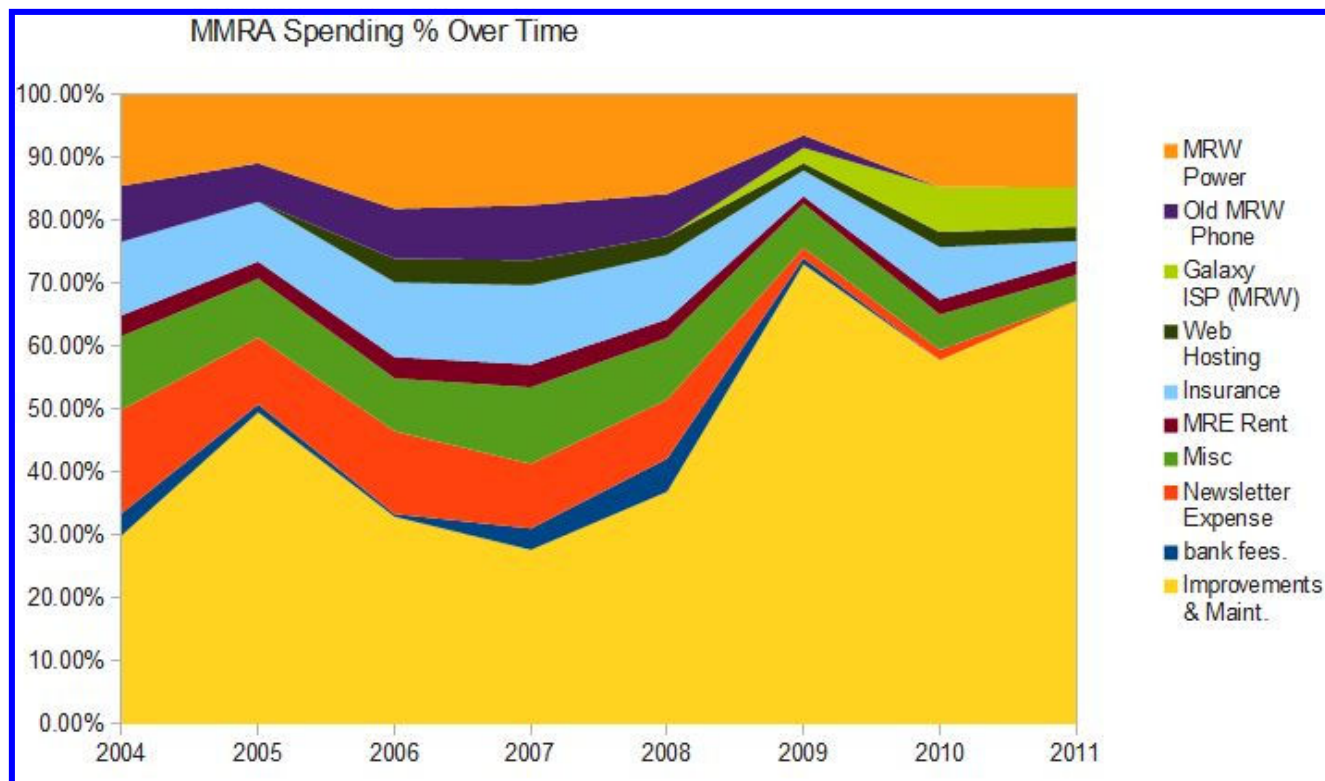
I'd be interested in hearing from club members about their interests in our hobby, and where MMRA might better serve them. Please contact me at [k1iw@mmra.org](mailto:k1iw@mmra.org). I may use one of the emails for a future topic in this space.

By the way, if you have children or grandchildren, I encourage you to look into the 4H program in your area. When they hear of 4H, most people think of large pumpkins or shiny apples at the state fair. On the contrary, this organization has a strong technology component, as well as other areas of interest. Their website is <http://www.mass-4h.org>.

Bob—K1IW

## How has MMRA Spending changed over time?

**Kevin Paetzold — K1KWP — Treasurer**





## MMRA Repeater Controller Primer – Part 3 - Inside the 7K

**Bob DeMattia — K1IW**

In the previous two installments, I discussed the MMRA standardization and how the MMRA network links can be reconfigured. In this third and final part, I'll explain a little more about the SCOM controllers. The controllers are microprocessor based. There is a DTMF decode listening to each repeater receiver. When a digit is received, it is sent to the CPU to be stored as an incoming sequence. The sequence is determined to be complete after a certain amount of time, after a "\*" DTMF is received, or after the receiver goes inactive. Once a sequence is completed, it is compared against a table of sequences to determine what to do next.

The controller has built-in "root commands" that are hard coded to a particular action. These root commands are prefixed by a secret password code which MMRA has selected. For reasons of security, I'll represent this code by (PW), though in reality it is a sequence of digits.

Here is an example of how a root command is processed. The 7K controller has seven logic outputs which can be turned on or off by a particular DTMF sequence. That sequence is:

**(PW) 70 n p**

Where 'n' is the logic output number, 1 through 7, and 'p' is a 0 to turn it off or 1 to turn it on. So to turn on logic output #3, you would enter:

**(PW) 70 3 1**

Then the sequence is completed by letting go of your PTT switch. The controller looks up this sequence and turns on logic output 3. There are hundreds of root commands that change timer values, turn transmitters on and off, enable receivers in carrier squelch on PL tone, etc. SCOM makes its user's manual available on its website. If you are interested in seeing all of them, visit <http://www.scomcontrollers.com/resource.shtml>.

The root commands are nice, but what if you want to do a number of things at once. You wouldn't want to have to enter dozens of different root commands separately. To accomplish this, the controller also allows us to program macros. Macros are a collection of root commands which are assigned to a predetermined DTMF sequence. This sequence must be different from (PW) so that there is no possibility of confusion between a root command and a macro. As an example, let say you want to a function "1234" that turns on logic output 3, changes the timeout timer to 90 seconds, then announces that it has done this. You would program a

macro using a set of root commands:

```
(PW) 20 1234 (PW) 70 3 1
      //macro 1234 step 1, turn on logic output 3

(PW) 29 1234 (PW) 40 015
      // step 2, set timeout timer to 90 second

(PW) 29 1234 (PW) 15 9960 0515 0338 0439
      //step 3, say "Timer Ninety Seconds"
```

Note that the root commands are embedded into the macro. Now whenever the controller receives the sequence "1234", it will execute the three root commands programmed into it.

This process might raise a few questions:

Q: The MMRA repeaters have well over 300 macros programmed. Do I really have to enter hundreds of DTMF digits in order to program the controllers?

A: No. While DTMF into the repeater is an option, there is a way to connect the controller to a PC and upload the sequences without have to go over the air. At some sites, the PC is on the internet and we can actually do the whole thing off-the-air from my home office.

Q: What's with all the numbers? It seems very cryptic.

A: Fortunately, there is a text translator that allows me to enter the programming an plain English text. I would write the above example like this:

```
#define SHORTTIMEOUT 1234
SHORTTIMEOUT: LO3_ON
      SET_TIMEOUT 015
      MSG_TX1 "Timer Ninety Seconds"
```

The translator would take this text and convert it to the above digit sequence.

I hope you've enjoyed my explanation of the MMRA controller system. If you have any further questions, please feel free to email me at [k1iw@mmra.org](mailto:k1iw@mmra.org).

**Bob—K1IW**

## New MMRA 222 MHz Network!

The MMRA has created an exclusively 222 MHz Repeater Network. All the MMRA 222 MHz repeaters are now full time linked together to each other only. The "MMRA 222 MHz Repeater Network" currently consists of:

223.94 Hopkinton( HOP)  
224.40 Quincy( QCY)  
224.70 Weston (WES)  
224.88 Marlboro( MRW)

For those of you that would like to try 222 or 900:

Alinco has released the first amateur dual band handheld for 900 MHz and 222 MHz. — The Alinco DJ-G29T  
<http://www.alinco.com/Products/DJ-G29/>

The proposal was made at the February 16 board meeting by WA1NVC to promote activity on the 222 MHz band, make more effective use of the MMRA 222 MHz repeaters, and hopefully bring more members to the club. The cost was \$0.00. The implementation was completed on the same day.

With the recent Air Force Radar activity on the 440 MHz band and the Pave Paws Radar restrictions placed on the 440 MHz band, many are looking towards other bands with 900 MHz and 222 MHz being the obvious choices. The 900 MHz band has gained activity as a result of the 440 MHz restrictions; the 222 MHz band has better propagation than 900 MHz and there is much more ham gear available for it.

New equipment for the 222 MHz band has come on the market: Jetstream mobile(\$230), Alinco mobile (\$230), Wouxun 144/222 MHz portable(\$100), Alinco 222 MHz portable(\$170), Alinco 222/900 portable (\$350), Kenwood 144/222/440 MHz portable(\$300), etc.

"Tuesday is 220 Day" is being promoted by Jeff, N1ZZN, and Roger, WA1NVC. This is similar to the "Thursday is 900 Day" promotion. The choice of days comes from the activity nights: Monday 144 MHz, Tuesday 220 MHz, Wednesday 432 MHz, Thursday 900 MHz and up.

## W1S Needs You!

**Bill McIninch — KA1MOM — Coordinator, W1S**

Special event station W1S (Waltham: #1 in Steam) will be part of Waltham's 2012 Steampunk City festival on May 12-13. We need operators and ideas to keep the station on the air from 1300-2300Z both days. The station will be a modern HF station disguised in a shell modeled after the Massie Spark Gap station.

In the steampunk world, the world of Jules Verne and other visionaries, Congress granted Mahlon Loomis a charter for his Aerial Telegraph Company in 1873, and five years later a charter to William Henry Ward for voice transmissions. By 1880, the aether was full of signals from both commercial and amateur stations. The Industrial Age had sent its thoughts to the skies. Waltham was the American center of the Industrial Revolution, and the town now celebrates it with the annual Steampunk City weekend. Come help us show Wireless as part of that world.

For more information, contact Bill McIninch at KA1MOM@aol.com.

NOTE: Fancy costume not required, but we have people to help operators look the part. Other hams welcome, especially those willing to disguise HTs for effect.



## **MMRA February Business Meeting**

**Bob Evans ~ N1BE ~ Clerk**

The MMRA held a business meeting at the Waltham-Weston Corporate Center on February 15th at 7:00 PM. K1IW, K1KWP, N1NVK, N1BDA, WA1NVC, N1BE, and W1MPN were in attendance. Many items were discussed. Look for additional details elsewhere in this newsletter.

Kevin, K1KWP, presented a treasurer's report complete with balances, analysis of historic and expected spending and income, and a list of previous members who have not renewed and are now beyond the grace period for lapsed members. Roger, WA1NVC, supplemented the list of lapsed members with callsigns of heavy 900 MHz users who are not current MMRA members. Kevin took the action item to write a letter to the non-member 900 MHz users, inviting them to join the MMRA. On a positive note, the MMRA currently has more dues paying members than we did in either of the last two years.

Bob, K1IW, quickly reported repeater status, focusing on changes since our last meeting. 224.88 seems to be getting desensed by its output; a similar problem is also occurring on 146.715. The 6-Meter receive system has been replaced, eliminating the voter; this seems to be working well. The poor D-Star receive sensitivity problem continues.

Roger, WA1NVC, presented a proposal to create an exclusively 222 MHz repeater network, by having the four MMRA repeaters on this band linked to HUB2 by default. HUB2 also could be linked to an IRLP reflector for 222 MHz systems on Tuesdays (222 MHz day). The board approved giving this a trial and reconfiguring MMRA assets.

The HUB2 usage change will isolate the 10-Meter repeater from the MMRA network. In addition, there are some issues with the 10-Meter repeater that were discussed but the board did not resolve: 10-Meter receive sensitivity seems poor, and now that 10M skip is occurring, we want to limit the amount of QRM (to both bands) caused by linking 10M to the repeater network. Isolating 10M from the network seems to be a reasonable approach at this juncture.

\$160 was approved for hardware to allow

connection of HUB2 to IRLP. In addition, \$300 was approved to build an additional RF link to the Clay Center if we cannot establish TCP/IP connectivity to HUB2 for IRLP. At the time of the meeting, it was not certain whether the second expenditure would be necessary.

We discussed MMRA participation at the Feb. 18 Marlboro flea market. WA1NVC and KC1US are expected to represent the MMRA. A few others indicated they likely would also attend.

MMRA participation at the Boxboro convention was then discussed. We mostly talked about raffle prizes. The board confirmed the action from a prior meeting, to use the IC-730 in MMRA possession as one prize. Mike, W1MPN, offered to donate an ARRL General Class License Course to be used as another prize. The board approved an expenditure of up to \$300 for additional prizes, favoring test equipment and/or a radio suitable for 222 MHz. K1IW and W1MPN took the action item to acquire the additional prizes.

Bob, K1IW, mentioned the possibility of getting an MMRA table for the Boxboro Saturday evening banquet. This would provide 8 seats together at a 12.5% price reduction. No action was taken on this.

Mike, W1MPN, represented the MMRA at the ARRL NE Division Cabinet meeting in January. Mike presented a dozen slides with highlights from that meeting. We had brief discussions of the items pertaining to teaming with makezine readers/hackerspace users as individuals who would be interested in Amateur Radio, RF Spectrum challenges due to the National Broadband plan, and an e-book version of QST to be available in the future. Mike closed with a summary of changes planned for Massachusetts Emergency Communications. We had particular interest in this last item with an extended discussion. There is a meeting for former MRAS members on Feb. 25 devoted to this item. Mike also will provide a presentation on this topic at the March MMRA meeting.

The meeting adjourned at 9:15 PM.

Bob—N1BE

## 2011—2012 Meetings

21 September — Membership Meeting  
Rob Macedo, KC1CY — Tornadoes and Hurricanes  
Westborough Public Library ~ 7:00 PM

19 October — Business Meeting  
Southborough House of Pizza

16 November — Membership Meeting  
Ham Radio at The Boston Marathon  
MEMA Hqtrs, Framingham ~ 7:30 PM

14 December — Business Meeting  
Stratus, Maynard

18 January — Membership Meeting  
All About D-Star — Terry Stader, KA8SCP  
Northborough Free Library ~ 7:00 PM

15 February — Business Meeting  
Conexant, Waltham ~ 7:00 PM

21 March — Membership Meeting  
Ham's in Emergency Communications — Mike Neilson, W1MPN  
Concord Public Safety Bldg / EOC ~ 7:00 PM

18 April — Business Meeting  
No meeting in April

16 May — Membership Meeting  
TBA & MMRA General Elections  
TBA ~ 7:00 PM

20 June — Business Meeting  
Kennedy's Pub, Marlboro ~ 7:00 PM

## Don't Forget!

Every Tuesday @ 8 PM

### Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIAOS Net. Join us! This is a good way to keep up with what is happening in the MMRA and ask your ham related questions.

If you would like to try your hand at Net Control contact me at [W1DYJ@mmra.org](mailto:W1DYJ@mmra.org) — we have a script you can use.

### Current Net Control Operators:

Week 1	WA1JIM	Jimmy Devaire
Week 2	W1DYJ	Larry Banks
Week 3	KQ1Y	Tim Wortley
Week 4	K1KWP	Kevin Paetzold
Week 5	W1DYJ	Larry Banks

### To connect using the digital modes during the Net:

Use the New England Reflector: connect via  
\*NEW-ENG\*, node 9123. You can find this under  
"Node Types" >> "Conferences."

For the HHTN, use \*NEW-ENG2\*, node 9127

## MMRA Leaders

### Officers

President	Bob DeMattia	K1IW
Vice President	Steve Telsey	N1BDA
Secretary	John McGovern	W1JMC
Treasurer	Kevin Paetzold	K1KWP
Clerk	Bob Evans	N1BE
Technical Officer	Bryan Cerqua	W1BRI

### Board of Directors

Director »2012	Clark Conti	N1NVK
Director »2012	Mike Neilsen	W1MPN
Director »2013	Steve Schwarm	W3EVE
Director »2013	Roger Coulson	WA1NVC

### Repeater Trustees, Appointed

Belmont 145.430	Larry Arone	WA1RTT
Boston 927.0625	Rick Zach	K1RJZ
Brookline 146.820	Bob Phinney	K5TEC
Burlington 146.715	Bruce Pigott	KC1US
Burlington 446.775	Larry Banks	W1DYJ
Hopkinton 223.940	Kevin Paetzold	K1KWP
Lowell 442.250	Vince De La Flor	K1LVF
Marlboro 53.810, Quincy 146.670, Southboro 449.575	Bryan Cerqua	W1BRI
Marlboro 144.390, 147.270, 224.880, 449.925, 927.700		
Weston 442.700 — all as W1MRA		
	Bill Northup	N1QPR
Mendon 146.610	Jim Podsiadlo	AE1C
Weston 146.790	Bob Evans	N1BE
Weston 224.700	Eddie Mulhern	N1NOM

### Appointed, non-Voting

Newsletter Editor	Larry Banks	W1DYJ
Emergency Coord.	Kevin Paetzold	K1KWP
Public Service Coord.	Bruce Pigott	KC1US
VEC Liaison	Bill Wade	K1IJ
Net Manager	Larry Banks	W1DYJ
Web Page Editor	Bob DeMattia	K1IW

Previous issues of the MMRA Newsletter are available at:

[www.mmra.org](http://www.mmra.org) → [Newsletter Archive](#) (on the left)

## MMRA VE Sessions

3rd Saturday of each Month

9 AM at the Marlboro Public Library

Contact: Bill Wade, K1IJ 781-891-9079

Evenings 6 - 10 PM Weekends 8 AM to 10 PM.

Accredited by the ARRL VEC

**Membership Meeting ~ Wednesday, 21 March 2012 @ 7:00 PM**

## **Ham's in Emergency Communications**

**Concord Public Safety Building, EOC training room, 209-219 Walden St.**

**Mike Neilsen, W1MPN**

### **Calendar of Ham Radio Flea Markets**

See this web site for more information: <http://mit.edu/w1gsl/Public/ne-fleas>

23-24 Mar	Lewiston ME	AARL Conv @Ramada	17 Jun	Cambridge MA	FLEA at MIT
25 Mar	Framingham MA	FARA @KeefeTech	15 Jul	Cambridge MA	FLEA at MIT
31 Mar	Middletown NY	OCARC @WalkillCom	11 Aug	St Albans VT	STARC @VFW
15 Apr	Cambridge MA	FLEA at MIT	12 Aug	Adams MA	NoBARC @BoweFld
21 Apr	S Portland ME	PAWA @AmLegion	19 Aug	Cambridge MA	FLEA at MIT
28 Apr	Gales Ferry CT	RASON @FireCo	24-26 Aug	Boxboro MA	ARRL Conv @HI
29 Apr	LaGrangeville NY	MtBARC @TymorPk	8 Sep	Ballston Spa NY	SCRACES @FG
4,5 May	Deerfield NH	Nearfest XI @FG	9 Sep	Newtown CT	CARA @TownHall
12 May	E Greenbush NY	EGARA @FD	15 Sep	Forestdale RI	RIAFMRS @VFW
19 May	Goshen CT	SoBARC @FG	15 Sep	Windsor CT	VR+C Mus
20 May	Cambridge MA	FLEA at MIT	16 Sep	Cambridge MA	FLEA at MIT
2 Jun	Windsor CT	VR+C Mus	12,13 Oct	Deerfield NH	NEARFest XII @FG
10 Jun	Queens NY	HoSARC @HoS	14 Oct	Queens NY	HoSARC @HoS
16 Jun	Newington CT	NARL @StMarySch	21 Oct	Cambridge MA	FLEA at MIT
16 Jun	Brookline NH	NEAntqRC@EvtntCtr	27 Oct	Gales Ferry CT	TCARC @FireCo

#### THE MINUTEMAN REPEATER ASSOCIATION

**MMRA**  
**P.O. Box 669**  
**Stow, MA. 01775-0669**

Email: [contact@mmra.org](mailto:contact@mmra.org)



WE'RE ON THE WEB  
[HTTP://WWW.MMRA.ORG/](http://www.mmra.org/)